

REMARKS

Reconsideration and withdrawal of the rejections of this application and consideration and entry of this paper are respectfully requested in view of the herein remarks, which place the application in condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

The applicants acknowledge the indication of allowable subject matter with respect to claims 10, 11, 17 and 18 if rewritten in independent form.

Claims 11, 12, 14 and 17-20 have been amended in order to address the Examiner's objections and rejections under 35 U.S.C. 112, second paragraph. The claim amendments are supported throughout the specification, in particular, by Examples 1-12. Claim 14 is directed to an ionic liquid wherein the cation is selected from the group consisting of ammonium, imidazolium and pyridinium. Claims 10, 11 and 19 are directed to the imidazolium ion; claims 12 and 20 are directed to the pyridinium ion; and claims 17 and 18 are directed to the ammonium ion. Claims 1-20 are now pending. No new matter has been added.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112. The amendments of the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. THE 35 U.S.C. 112, 2ND PARAGRAPH REJECTION HAVE BEEN OVERCOME

Claims 19 and 20 have been amended to be dependent upon different claims (claims 11 and 12, respectively) and as such the rejection has been rendered moot.

III. THE REJECTION UNDER 35 U.S.C. § 103(a) ARE OVERCOME

A. Claims 1-9, 12-16 and 19-20 were rejected by the Examiner as allegedly being obvious over Murphy (WO 00/32572) in view of Hardman et al.¹ as evidenced by Meals²

¹ *Silicones* (reprinted from Encyclopedia of Polymer Science and Engineering, vol. 15, second edition, pages 254-258, 298 and 300, (1989).

² *"Hydrosilation in the Synthesis of Organosilanes"*, *Pure and Applied Chemistry*, vol. 13: 141-157, (1966) - this citation is presumed correct; the copy provided by the Examiner did not include the reference page.

and Sheldon³ or alternatively Vaultier⁴ The applicants' traverse this rejection and request reconsideration of the rejection in view of the following reasons. Request for reconsideration is respectfully requested.

Despite the addition of the Hardman, Meals and Vaultier references, the basic construct of the Examiner's rejection is the essentially the same as the previous rejection on the record. Both rejections are "collection of the elements"-type rejections which has long been held to be improper for establishing a *prima facie* case of obviousness. The applicants now explain why the combination of Murphy, Hardman, Meals, Sheldon and Vaultier does not establish a *prima facie* case of obviousness.

MPEP 2141 states in part:

"When applying 35 U.S.C. 103, the following tenets of patent law ***must be adhered to***:

- (A) The claimed invention must be considered ***as a whole***;
- (B) The references must be considered ***as a whole*** and ***must suggest the desirability*** and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined

Hodosh v. Block Drug Co., Inc. 786 F.2d 1136, 1143, n.5, 229 USPQ 187 n.5 (Fed. Cir. 1986)." (emphasis added).

This "as a whole" assessment of the invention requires a showing that an artisan of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and ***with no knowledge of the claimed invention***, would have selected the various elements from the prior art and combined them in the claimed manner. *Id.* In other words, section 103 requires some suggestion or motivation, before the invention itself, to make the new combination. *See In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998) - i.e. the Examiner has the benefit of the applicants' claims before him in order to determine the scope of the invention to be examined, however, ***the person of ordinary skill in the art does not have the same benefit*** and must consider the references cited by the Examiner with no knowledge of the applicants' claimed invention.

³ "Catalytic Reactions in Ionic Liquids", Chem. Commun., pgs. 2399-2407 (1996).

⁴ Symposia papers presented before the Division of Environ. Chem., *American Chemical Society*, vol. 41(1): 398-400, (April 1-5, 2001) - "Transition metal catalyzed hydroboration and hydrosilation of acetylenes in ionic liquids.

Additionally, the supporting references cited by the Examiner would seem to suggest that at the time of the applicants' invention was made, there was no reasonable expectation of success for the applicants' process of preparing organomodified polysiloxanes.

"As a Whole" Considerations Does Not Support Examiner's Selection of Elements

In the Examiner's response to the applicants' previous arguments, the holding of *In re Keller* and *In re Merck & Co., Inc.* was cited ("One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references."). However, the Examiner is misapplying the holding of *Keller* and *Merck* and appears to have misinterpreted the applicants' previous arguments.

1. Reliance on *Keller* and *Merck* decisions are misplaced

MPEP 2144.04 states that "...if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court." In *Keller*, the Examiner rejected the claims using three references but the affidavit submitted to rebut the holding of obviousness only address one of the references cited. Likewise, in *Merck*, the Examiner cited three references to show that bioisosterism was commonly used by medicinal chemists at the time the invention was made. The appellant only addressed one of the three references cited by the Examiner in rebutting his rejection. However, this is not the situation in the present application, i.e. all of the references which was/is being cited by the Examiner are addressed by the applicants (the Examiner appears to have confused the interpretation of the term "individually" from *Keller* and *Merck*, i.e. nothing precludes the applicants from addressing each reference separately as long as all of the references are addressed and viewed from the Examiner's "as a whole" considerations or lack thereof.).

2. Misinterpretation of the applicants' arguments against improper "picking and choosing"

It is well known that 'virtually all [inventions] are combinations of old elements...Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat patentability of the claimed invention. Such an approach would be 'an illogical and inappropriate process by which to determine patentability.' *Sensotronics*,

Inc. v. Aerosonic Corp., 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996).”
In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998).

As establishing a *prima facie* case of obviousness requires that each and every limitation be taught by the prior art reference (see MPEP 2143.03), this “collection of elements” is often a necessary step for the Examiner to take in order to formulate an obviousness rejection. However, accumulating the references necessary to address every limitation of the applicants claims also requires consideration of those accumulated references “as a whole”.

Based on the Examiner’s response, it appears that the Examiner would view the present rejection as the teachings of Murphy plus only the requisite elements from Hardman, Meals, Sheldon and Vaultier necessary to establish a *prima facie* case of obviousness. This is incorrect.

The “as a whole” consideration requirement forces the Examiner to accept all of the teachings of these references not just the elements that the Examiner needs to formulate his rejection. MPEP 2145, section V. states in part that “Reliance on a large number of references in a rejection does not, without more, weight against the obviousness of the claimed invention.” *In re Gorman*, 933 F.2d 982 (Fed. Cir. 1991). However, using multiple references often increases the degree of difficulty for an Examiner to maintain the rejection because of the likelihood that the combined teachings as a whole contain contradictory or irrelevant information which decreases the chance that the applicants’ claimed invention would be obvious to one of ordinary skill in the art when confronted with the totality of the cited references (but does not have the applicants’ claims to act as a guidepost).

For the present rejection, it is unclear what is the groupings of the secondary references (i.e. Hardman, Meals and Sheldon as one group and then Vaultier as another group or Hardman, Meals and Sheldon as one group and Hardman and Vaultier as another group). Regardless, the question to be asked is why one of ordinary skill in the art would be directed to select the specific elements of these references (while ignoring the rest of the teachings) and combine them with Murphy. As will be shown below, there is no clear direction to combine the references as the Examiner has proposed.

*The Combination of Murphy, Hardman, Meals, Sheldon and Vaultier
Do Not Teach or Suggest the Applicants' Claimed Invention*

The process of preparing organomodified polysiloxanes of claim 1 contains several elements which ***must be present*** to be considered part of the process. These elements include:

- (1) reacting a SiH-containing polysiloxane;
- (2) with a compound that contains C-C multiple bonds;
- (3) in the presence of transition metal catalysts; wherein
- (4) the reaction is carried out in the presence of an ionic liquid; and
- (5) after the reaction is complete, the ionic liquid together with the dissolved catalyst is separated from the reaction mixture

The combination of Murphy, Hardman, Meals, Sheldon and Vaultier, do not teach this simultaneous combination of elements to one of ordinary skill in the art.

The Examiner acknowledged that Murphy does not teach the use of a SiH-containing polysiloxane for modification which is not surprising given the context of Murphy's teaching, i.e. Murphy is broadly directed to a ***combinatorial*** process for the discovery of ionic liquids for particular reactions (see page 4, lines 14-17) wherein the "particular reactions" are specifically directed toward the preparation of polyolefins and very high molecular weight polyisobutylenes.

Moreover, the evidentiary support for the Examiner's opinion that Murphy would teach the use of a compound which contains a C-C multiple bond is only relevant within the context of Murphy's preparation of polyolefins or polyisobutylenes. There is no teaching or suggestion from within Murphy which would direct one of ordinary skill in the art to conduct hydrosilylation involving a compound with C-C multiple bonds especially in the present instance when there is not even a teaching for use of a SiH-containing polysiloxane.

The very fact that the Murphy reference is directed toward a combinatorial process lends itself to the conclusion that this is an application which is an unfinished product that merely "invites others to experiment" without having performed or supported with evidence that the full breadth of their contemplated invention is enabled.

Lastly, the applicants describe the related art with regard to hydrosilylation in the presence of a transition metal catalyst and also the disadvantages in the art with regard to this process which would steer those of ordinary skill in the art away from even using this process

much less spend the effort trying to locate the teachings within Murphy to assist in practicing the applicants' claimed invention (see page 1, lines 6-25 of the specification).

The Hardman reference does not add anything that was not referred to by the applicants in their "Description of the Related Art" and appears just to be a general review of the hydrosilation cures. Moreover, there is nothing to suggest that the disadvantages with regard to these processes could be overcome by combining it with the teachings of Murphy. The basis for using Hardman appears to be based on "could be combined" logic. However, MPEP 2143.01 states that "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." Given the state of the art, it is unproven that even "could be combined" is appropriate and that the basis for combining the references is the even more inappropriate "obvious to try" standard. Neither Murphy or Hardman suggest the desirability of the combination as will be shown below, the additional references cited by the Examiner actively teach away from any such combination.

The Meals reference is similar to that of Hardman in generically referring to a hydrosilation process which includes siving a siloxane containing SiH. However, Meals also states that "[t]he usefulness of the [hydrosilation] reaction is limited by a number of things. There are some side reactions, including polymerization and isomerization of the olefin, and these cannot always be controlled. We do not know how to make all possible combinations of silanes and olefins react, let alone make at will the upper or lower type product of equation (1)...For today we can only consider the simplest cases which are complex enough." (page 141-142 of Meals). Therefore, the recitation of Meals actually weakens the Examiners position and strengthen the applicants contention that the teachings of Murphy are not generally applicable to other processes and that one of ordinary skill in the art would not have presumed that adding an ionic liquid would be appropriate for use with process for preparing organomodified polysiloxanes.

Although on cursory review the Sheldon reference would appear to be on point, in actuality Sheldon is of little use even for the narrow holding that element (5) is taught. The Sheldon reference does not actually report on any new research but is really a review of the state of the art regarding catalytic reactions in ionic liquids at the time of its publication. For this reason, it is noteworthy that Sheldon does not report on the modification of polysiloxanes (and

SiH-containing polysiloxanes in particular). In this regard, Sheldon suffers from the same deficiencies as Murphy, i.e. there is no teaching or suggestion from within the reference which would direct one of ordinary skill in the art into the direction of SiH-containing polysiloxanes and further still, to modify such a polysiloxane with a compound containing C-C multiple bonds.

Sheldon does indeed state that “efficient recycling of catalyst is a *conditio sine qua non* for economically and environmentally attractive processes.” (see Abstract, page 2399). However, as there is no direction or guidance within Sheldon to modify such a SiH-containing polysiloxane with a compound containing C-C multiple bonds, there is also no teaching of separation step after such a modification.

Vaultier is also not relevant as this reference only teaches the hydrosilylation of acetylenes in ionic liquids and does not speak to the issue of making organomodified polysiloxanes. As the state of the art is such that one would expect various disadvantages with a generic process related to forming polysiloxanes (which is confirmed by Meals), one of ordinary skill in the art would not expect that the process conditions of Vaultier which is not directed to formation of polysiloxanes could be applied to any of the processes described in Murphy, Hardman, Meals or Sheldon.

When considering the five references as a whole, one of ordinary skill in the art is left with the teaching that the state of the art at the time the invention was made was that a process of making polysiloxanes is fraught with disadvantages and is not equivalent to other processes which may use similar reactants or process conditions. The skilled artisan, lacking access to the applicants claims, would also find that ionic liquids have been used but would not know that they could be used in connection with the formation of organomodified polysiloxanes and would be reduced to an improper “obvious to try” standard for combining the references.

*Evidence of Unexpected Results in Light of the State of the Art
and the References Cited by the Examiner*

The state of the art as described by the applicants and further illustrated by Meals suggests that it was surprising and unexpected that the applicants claimed process of making polysiloxanes using an ionic liquid was able to provide high quality polysiloxanes and is evidence of unexpected results over the references cited by the Examiner - see Examples 1-12 from the applicants specification; each of the examples results in a clear liquid which is indicative of high quality polysiloxanes.

Conclusion

Since the collection of Murphy, Hardman, Meals, Sheldon and Vaultier merely recite isolated elements of the applicants' invention and provide no guidance for simultaneously having all of the elements of the applicants' claimed process for making organomodified polysiloxanes, the withdrawal of the obviousness rejection can properly be made.

In addition, the applicants have shown evidence of unexpected results in their Examples which was contrary to the expectation in the art at the time the invention was made and for this reason also, the withdrawal of the obviousness rejection can properly be made.

B. Claims 1-9, 12-16, 19 and 20 were also rejected as allegedly being obvious over Vaultier in view of Hardman as evidenced by Meals. Request for reconsideration is respectfully requested.

As each of these references were cited in the rejection made above and the rejection was made on a combination of references, it is unclear why both rejections are necessary if either rejection was deemed to be applicable to the claimed subject matter (see MPEP 706.02 section I. "Prior art rejection should ordinarily be confined strictly to the best available art...Merely cumulative rejections, i.e. those that would clearly fall if the primary rejection were not sustained, should be avoided.").

In any event, the arguments present above with respect to Vaultier, Hardman and Meals are also to be considered applicable here.

REQUEST FOR INTERVIEW

In the interest of adhering to the tenets of compact prosecution and obtaining good customer service, the applicants request that the teachings of MPEP 707.07(j), sections II and III be applied, especially with regard to the offer of suggestion for correction by the Examiner if the rejections are upheld.

In accordance with MPEP 713.01, section III, should any issue remain as an impediment to allowance, an interview with the Examiner and SPE are respectfully requested; and, the Examiner is additionally requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview ("An interview should normally be arranged for in advance, as by letter, facsimile, electronic mail, telegram or telephone call, in order to insure that the primary examiner and/or the examiner in charge of the application will be present in the office." *Id.*).

CONCLUSION

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution. The Commission is authorized to charge any fee occasioned by this paper, or credit any overpayment of such fees, to Deposit Account No. 50-0320.

Respectfully submitted,

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